Name- Prateek Sharma **Reg. No. 01/PhD/DPSRU/2016**

Name of the Supervisor- Dr. Rajani Mathur

Title of Research Project: To Study the Intestinal Fructose Transport (via GLUT2 & GLUT5 transporters) in Rodent Model of Fructose Induced Childhood-adolescent over weight/ Obesity and Investigate the Preventive Potential of Some Medicinal Plants Therein

Abstract: Fructose, a simple carbohydrate, is often consumed in the form of sugar-sweetened beverages (e.g. Fruit Drinks and Soda), candy, soft drink. It has greater obesogenic potential over the other carbohydrate and isassociated to metabolic syndrome,being connected with hypertriglyceridemia, hypertension, insulin resistance, Nonalcoholic fatty liver disease (NAFLD)and other cardiovascular complications.

Fructose is believed to be transported through the intestinal epithelium by facilitating transporter GLUT 5 that can be targeted for the inhibition of fructose transport to inhibit the fructose induced childhood adolescence- overweight/obesity with the plant derived molecules.

The present study evaluated the therapeutic potential of Aegle marmelos, Psidium guajava and Nigella sativa fructose induced childhood-adolescence overweight obesity in rodents.

The followingworkwas covered:

1. To develop acute and chronic model of fructose induced childhood-adolescence overweight obesity in rodents.
2. To study the expression of GLUT 2 and GLUT 5 in in established model.
3. To study the effect of extracts of Aegle marmelos, Psidium guajava and Nigella sativa on the expression of GLUT2 and GLUT5 transporters by Western Blot in established model.
4. To study the effect of extracts of Aegle marmelos, Psidium guajava and Nigella sativa on the expression of GLUT2 transporters by rt-PCR in in established model.

Compliance of the earlier URAC recommendations- Complied with.

Recommendation of the DSRC committee- Work progress is quite satisfactory and as per objectives and plan of work decided earlier.

Outcome:

The rodent model was established, and molecular data pertaining to objective 3 was achieved. Studies including consumption/ absorption of fructose after acute (28 days) and chronic (56 days) administration , insulin sensitivity/ tolerance, expression of GLUT 2 protein, m-RNA, GLUT 5 protein and m-RNA for the same in intestine /liver using the plants extracts has been completed.